REMARKS:

Claims 20-32 are in the case and presented for consideration.

Claim 20 has been amended. Support for the amendments made to claim 20 can be found throughout the originally filed specification, particularly in paragraphs [0009], [0018] and [0019].

New claim 32 has been added. Support can be found in paragraph [0018] of the originally filed specification.

SPECIFICATION

The specification has been amended in accordance with Examiner's comments and it thus now believed to comply with the requirements of 35 U.S.C. 132(a).

REJECTION OF CLAIMS UNDER 35 U.S.C. §112, 1st AND 2nd PARAGRAPH

Claim 20 has been amended in accordance with Examiner's comments. Thus, the claims are now believed to comply with the requirements of both 35 U.S.C. 112, first paragraph and 35 U.S.C. 112, second paragraph.

FIRST REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)

Claims 20, 22, 23, and 25-31 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,753,045 to Karner et al ("Karner"), in view of U.S. Patent 5,340,621 to Matsumoto ("Matsumoto").

Applicants respectfully traverse the Office's rejections that the claims of the present application are obvious in view of the cited prior art.

Both Matsumoto and Karner fail to disclose or suggest critical elements claimed in currently amended independent claim 20, from which all other claims depend.

Applicants respectfully contend that currently amended claim 20 now makes clear the differences between the plasma beams generated by the presently claimed invention as compared with the plasma beam disclosed in Matsumoto. The plasma beam in Matsumoto is a thin plane shaped, sheet like plasma beam which is generated by a pair of cathode and anode electrodes as well as by a magnetic field applying means by which the plasma taken out to the vacuum chamber is transformed into the addressed thin sheet like plasma spreading parallel to the substrate. *See col. 6, ln. 1-13.*

By contrast, the presently claimed invention makes use of discrete plasma beams, each with a plasma density distribution which has a maximum along the respective axis, i.e. which drops circularly symmetrically to all sides of the addressed axis.

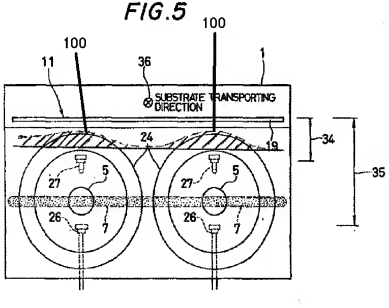
In order to aid in explaining the differences between the presently claimed invention and Matsumoto, Fig. 5 of Matsumoto, is provided below. As Matsumoto generates a thin sheet like plasma beam, the substrates to be treated are provided along a plane which is a distance from, and parallel to the sheet like plasma beam. Additionally, as shown in Fig. 5 below, the plasma density in the plane parallel to plasma sheet (7) does not vary, at least not significantly, due to the sheet like beam.

Hash marking have been added to Fig. 5 below in order to show the plasma density distribution, indicated by reference number 100, which would result if Matsumoto's plasma sheet (7) were replaced with the discrete and distinct plasma beams of the presently

claimed invention. As illustrated, if plasma sheet (7) of Matsumoto were replaced by plasmas beams with respective axes perpendicular to the plane of fig. 5 and which have a plasma density which drops from the respective axes with increasing radial distance, as do the plasma beams claimed in currently amended in dependent claim 20, then there would be a significant variation of plasma density 100 in the plane parallel to the cathode/anode axes.

Additionally, unlike Matsumoto which provides means to generate a sheet like plasma (7) from plasma generated by a pair of anode/cathode electrodes, the present invention does not spend any effort generating a sheet like plasma discharge, but instead applies distinct plasma beams with the respective plasma density distributions. This makes it possible to achieve an acceptable distribution or homogeneity of the effect upon the substrates by maintaining a large enough distance between the substrates and the respective plasma axes (locus of maximum plasma density) so that the maximum plasma density encountered along such surface is 20% of the plasma density of the respectively closed or nearest distinct plasma beam.

FIG.5



Upon considering Karner, which discloses one single distinct plasma beam with a plasma density distribution dropping with increasing radial distance from the beam axis, it becomes clear to one of ordinary skill in the art why combining it with Matsumoto would not lead to not lead to the presently claimed invention. This is because Matsumoto teaches a different approach to plasma treatment of large surfaces or workpieces arranged along large surfaces than does the present invention.

Whereas Matsumoto provides for expanding the plasma of two plasma discharges generated by respective anode/cathode arrangements so as to form a sheet like plasma, the present invention maintains two discrete plasma beams, i.e. applies two distinct plasma beams. It thereby doubles the arrangement of Karner. Instead of establishing large area homogeneous distribution of an effect upon the substrates by respectively tailoring the plasma discharge as does Matsumoto, the present invention solves homogeneity problems by selected arrangement of the substrates.

Furthermore, neither Karner nor Matsumoto disclose or suggest "said surface being exposed to at most 20% of plasma density of the beam along said nearest axes" as claimed in currently amended independent claim 20.

Furthermore, Matsumoto and Karner also fail to provide a teaching or suggestion which could motivate one of ordinary skill in the art to come up with and combine the otherwise missing element and hence arrive at the presently claimed invention.

Therefore, because the aforementioned references fail to disclose critical elements claimed in currently amended independent claim 20, from which all other claims depend,

and because they do not provide teaching which would motivate one of ordinary skill in the art to arrive at the presently claimed invention, none of the current claims are obvious in light of any combination of Karner and Matsumoto.

SECOND AND THIRD REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)

Claim 21 was rejected under 35 U.S.C. 103(a) as being unpatentable over Karner and Matsumoto as applied to claims 20, 22, 23, and 25-31 above, and further in view of U.S. Patent 6,017,396 to Okamoto ("Okamoto"). Additionally, claim 24 was rejected under 35 U.S.C. 103(a) as being unpatentable over Karner and Matsumoto as applied to claims 20, 22, 23, and 25-31 above, and further in view of U.S. Patent 6,015,597 to David ("David").

The rejection is duly noted but Applicants respectfully traverse this rejection.

Both Okamoto and David fail to provide the critical elements of currently amended independent claim 20 which are missing from Karner and Matsumoto.

Furthermore, just as with Karner and Matsumoto, Okamoto and David also fail to provide a teaching or suggestion which could motivate one of ordinary skill in the art to come up with and combine the otherwise missing element and hence arrive at the presently claimed invention.

Therefore, because all the aforementioned references fail to disclose critical elements claimed in currently amended independent claim 20, from which all other claims depend, and because they do not provide teaching which would motivate one of ordinary

skill in the art to arrive at the present invention, none of the current claims are obvious in light of any combination of Karner, Matsumoto, Okamoto and David.

Accordingly, the application and claims are believed to be in condition for allowance, and favorable action is respectfully requested.

No new matter has been added.

If any issues remain, the Examiner is respectfully invited to contact the undersigned at the number below, to advance the application to allowance.

Respectfully submitted,
/SALVATORE P SPEZIO/
Salvatore P. Spezio
Reg. No. 60,868
Attorney for Applicants
(845) 359-7700

Dated: July 15, 2009

NOTARO & MICHALOS P.C.
100 Dutch Hill Road, Suite 110
Orangeburg, New York 10962-2100

Customer No. 21706

R:\PATAMD\H60-107DIV\H60-107DIV-Amend-Filed.wpd